



AVIONIC INSTRUMENTS, INC.

VMRP WALL CLIMBING ROBOT

VMRP's Offer Unique Mission Profile Capabilities

Based on patented VRAM[†] technology, the VMRP (VRAM Mobile Robot Platform) can scale and reside on walls and ceilings of various surface textures. VRAM technology provides attraction in air or underwater using a local captive vortex-"tornado-in-a-cup." It is significantly more efficient and quieter than a conventional vacuum, allowing the VMRP to have an extended mission run-time. Having the ability to climb a building or structure gives an operator elevated "eyes, ears, and hands" in areas previously considered inaccessible.

The VMRP's six-wheel, posi-traction drive-train permits maneuverability on uneven surfaces and facilitates floor-to-wall and wall-to-floor transitions. This feature can help keep an operator out of harm's way in a hostile environment. The VMRP can be controlled with a single-stick interface, simplifying command and control. VMRP's can be outfitted with an optional PDA-size Operator Control Unit (OCU,) providing the user with an elegant interface and full functionality. Multiple payloads are available such as posable video cameras, Pan-Tilt-Units, Boom-Arms for cameras and sensor positioning, and custom designed payloads, as well.

[†] Vortex Regenerative Air Movement (VRAM) is protected by US and international patents



The VMRP allows users to survey environments before approaching, entering, or operating near a structure. It can also place and attach sensors for long term monitoring.

VMRP's are ideal for battle damage assessment and routine inspection of aircraft and other military equipment.

With its low profile and unrivaled climbing ability, the VMRP is a very effective robot for dangerous or hard to reach inspections.



AVIONIC INSTRUMENTS, INC.

VMRP WALL CLIMBING ROBOT

Vehicle Specifications:

Length	6.5"
Width	8.5"
Height	2.5" to payload flat (4" overall)
Weight	1.875 pounds
Payload Capacity	> 1 pound (scalable)
Endurance	20-40 mins or longer depending on mission profile



Surface Independence:

VMRP Robots are effective on many surfaces. Shown below are VMRPs on ceiling tiles (top left), marble (top right), painted rough concrete (bottom left), and glass (bottom right.)



Ease and Simplicity of Deployment:

Weighing under 2 pounds, VMRP's can be carried with little effort. VMRP robots are very compact, roughly the size of a textbook, and fit easily inside a briefcase or backpack. There are several options for Operator Control Units (OCU,) with some as small as a PDA. Other OCU's include easy-to-use single-stick transmitters along with dual-stick transmitters to control additional actuators. Deploying the VMRP takes only seconds. The VMRP's ability to transition between the ground and the wall allows the robot to be deployed away from the desired location and travel to it, keeping operator out of harm's way.

Optional payloads include wireless cameras, Pan-Tilt-Units, Boom-Arms, and other custom designs.

The VRAM generates a local vortex attraction to the residing surface, allowing the VMRP to scale walls, ceilings, and other structures.

The six-wheeled, posi-traction drive-train provides traction on uneven surfaces in addition to allowing the robot to transition between the ground and walls.

Compact chassis design allows the VMRP to fit into tight spots and get the job done.

